what he calls the *aconic* function of a hexagon, at a future meeting of the Academy. The equation itself was exhibited by him to some scientific friends so long ago as the August and September of 1849; and also at the Meeting of the British Association, at Edinburgh, in 1850.

APRIL 14TH, 1851.

THOMAS ROMNEY ROBINSON, D. D., PRESIDENT, in the Chair.

JOHN BARKER, M. B., and William Kelly, M. D., were elected Members of the Academy.

George Petrie, LL. D., presented a specimen of a vitrified font in the County of Derry.

The President delivered an inaugural Address.

IT WAS RESOLVED UNANIMOUSLY,—That the President be requested to allow his Address to be printed in the Proceedings.

The President's Address was as follows:

GENTLEMEN,—It is my first duty to express my grateful acknowledgment of the honour which you have conferred on me; an honour high in the estimation of mankind, highest in mine. Other titles are attained most frequently by the accidents of position or birth; are even sometimes acquired by means which are positively degrading: they are occasionally the prizes of successful intrigue; sometimes even the reward of crime. They are, therefore, no accurate exponents of an individual's superiority in that which constitutes the real nobility of man; their value is conventional, rated highest by the meanest minds, and negative, an actual dishonour, unless they be accompanied by the more sterling decorations of wisdom and virtue. But it is far otherwise with this. In naming me your chief, you have given me the first rank in a Society where all are noble; a Society whose franchise is based on personal excellence, on moral worth, on intellectual superiority; whose

guiding principles are the most exalted on which the human mind can rely, love of knowledge, sense of duty, reverence of truth! To be one of your number is itself a high distinction; how much higher to be chosen as your head! how much the highest to be so honoured in one's own country!

Yet I cannot but feel, that in proportion to the dignity of such an office so are also the weight of its duties and the burden of its responsibility; which become still heavier when I compare myself with those who have preceded me in this proud station. Not to speak of the illustrious men who, in the earlier years of the Academy, upheld it by their energy and prudence, and flung over its infant struggles the glory of their own fame, I cannot fail to remember that I follow in immediate succession two of that great triad, who, in this latter time, have especially contributed to win for you that lofty position which you now hold in the realm of science. I know how painfully all here feel, that the third would as surely have filled the place which I now hold, had he been spared to pursue his brilliant career.

But though I may not compare myself to those mighty ones in achievements or power, there are qualities in which I yield neither to them nor to any, and on which, with your aid, I rely to preserve untarnished the sceptre which you have committed to my hand. The first is, devoted attachment to this Academy, which I have cherished and prized above the other scientific societies with which I am connected, during a series of years equalling half the ordinary extent of human life. The second, love of Ireland; pride in all that reveals the value and exalts the renown of my country; intense interest in all that tends to develope the powers and dignify the character of my countrymen. To carry into active effect this sentiment, has been with me a guiding principle through life; and whenever I have had access to the ear of power, or in the ordinary intercourse of scientific and social life, to give it extension and enforcement has been a main motive of my exertion, the aim of my ambition. I love my countrymen, not merely because they are my countrymen, but because there is in them a rich endowment of noble qualities. Their faults are but too apparent; they lie on the surface, and so do the causes of them; but beneath we find an ex-

haustless treasure of kind and generous feelings; a deeply imaginative and poetic character, which elsewhere is fast disappearing under the influence of affected civilization and utilitarian philosophy, but without which nothing of transcendent excellence is ever accomplished; and lastly, an energy and acuteness of intellect not surpassed by any people in the world. Surely these are heavenly gifts, and ought to unfold into a glorious future! Whatever, therefore, tends that way, whatever trains and guides these noble powers in their legitimate direction, or counteracts the deceptive influences that would make them instruments of evil, is a national blessing.

And such a thing I hold our Academy to be; not merely as an example and encouragement at home, or an evidence abroad of what we can perform, but because the habits which it requires of united exertion, of calm and dispassionate judgment, of steady and unvarying application, are among the most important elements of national happiness and glory. Without them the brightest qualities are a curse instead of a blessing.

It may, perhaps, be expected that I should now make some reference to those rich contributions which this Society has given to the treasury of knowledge; some estimate of their brilliancy and worth. This, for the present, I must decline; first, because it has already been admirably done on many occasions by my immediate predecessor; and secondly, because the train of thought into which I have been led is so completely in unison with the anticipations by which the founders of the Academy seem to have been guided, that it may not be unprofitable to develope it more fully.

In the Preface to the first volume of our Transactions, all of which is well worthy of your attentive consideration, this passage occurs, among many others of similar import:—"Whatever tends by the cultivation of useful arts and sciences to improve and facilitate manufactures; whatever tends by the elegance of polite literature to civilize the manners and refine the taste of the people; whatever tends to awaken the spirit of literary ambition, by keeping alive the memory of its ancient reputation for learning, cannot but prove of the greatest national advantage. To a wish to promote in these important respects the advancement of knowledge in this kingdom, the Royal Irish Academy for Science, Polite Literature, and Antiqui-

ties, owes its establishment; and though the members who compose it are not entirely without hope that their efforts may become extensively useful, yet the original intent of the institution must be considered as confining their views, for the present, more immediately to Ireland. If their endeavours shall but serve to excite in their countrymen some sense of the dignity of mental exertion, if their exhortation and example shall be so far successful as to become the means of turning vacant thoughts to science and to utility, their labours are abundantly recompensed."

You see they designed the Society which they were organizing to be an instrument of moral as well as intellectual cultivation; and to this we owe our peculiar constitution, admirably suited to such a purpose, but having no exact counterpart in any scientific body with which I am acquainted. It stands almost alone in the extent of its objects. Others are limited in general to a single department of inquiry, or even a small section of one: we have *three*, connected by no closer union than what exists between demonstration, conjecture, and fancy. It might be thought, that they could scarcely be brought into any harmonious co-operation, and that there could be but little sympathy between those who cultivate them. It might be expected, that the archæologist could not take any very strong interest in scalars and vectors, or the transcendental geometrician in the half-obliterated legend of a battered coin, and that they would only agree in their contempt of Punic dialogue or Assyrian orthography. Our plan is also liable to these objections, that polychrest machines seldom work well; that an object is best attained by undivided effort; and that the energy which, when confined in a single channel would be irresistible, is lost if you divide it into many streams. This opinion has latterly prevailed so far, as to induce philosophers, in many instances, to split into secondary societies those previously existing: it, however, seems to me to grow from a narrow and imperfect view of the subject. It is true that, in some respects, though not in all, the cultivation of particular branches of science may be benefited by this system of isolation; but there is ample ground for doubting whether it be equally beneficial to the cultivators. The mind that is restricted to some engrossing pursuit, and shut out from a wide range of

thought and activity, cannot but suffer; for it seems to me that a variety of objects and employments is as essential to a healthy development of man's intellectual powers, as a variety of food and exercise to those of his body. You may in the latter nourish particular muscles to enormous strength, if you confine yourself to the exclusive and unremitting practice of some one kind of exertion; but you do it at the expense of the rest; they waste away, and the individual who is deformed by such disproportion can never be considered a perfect specimen of the human figure. And so is it also with the mind: it may indeed, by a concentration of its activity on one object, acquire in respect of that an intensity of power; but on the whole it loses: the balance of its powers is disturbed; the decay of those faculties which are left inert more than compensates the partial vigour, and the result is far more than an average depreciation. But this narrowing of the mind has a danger much greater than mere loss of power, which Bacon saw clearly when in those words of weighty meaning, with which many of us are familiar, he warned us to beware of "the idols of the cave." The mind that retires from the broad expanse of its intellectual domain to some secluded nook, where it may devote itself undisturbed to the admiration of some favourite object, makes there for itself a den, where the little light that finds entrance is coloured and confused. It may from habit be able to find an easy path among the darkest windings of that abode, where one accustomed to the full daylight must grope his way with difficulty; but its vision is not the less imperfect. In that doubtful twilight all is distorted from its true form and magnitude; the things which it follows assume strange and fantastic shapes, become objects of visionary reverence, and are at last enthroned by it as idols to which it gives the worship due to that which should be its sole divinity, the spirit of truth. Well, too, if that wild dwelling become not also a lair of wilder influences! This oracle of the great hierophant needs no interpreter but experience: in every department of knowledge you find its fulfilment; errors glaring to all but their victim, while he thinks them axioms; blind and presumptuous exaggeration of the extent and power of his own acquirements, absurd and contemptuous disparagement of all with which he is unacquainted. Look

at the mist with which sulphur and phlogiston so long darkened chemistry! Look at Boreel explaining vital actions by mechanical principles, or Cumberland demonstrating ethics by the sixth book of Euclid. Look at one man referring everything to electricity, another to magnetism; one declaring man to be a mere association of infusoria, another an assemblage of voltaic currents; this antiquarian correcting the history of Herodotus from the poem of Firdûsi, that discovering that the Hydra of Hercules was a native of Killarney! But you will say this is madness: no, it is only the end of a chain of aberrations, whose first link is the almost imperceptible predominance of some idea or system; and had these dreamers been dragged from their dens, had they been compelled to look at their idols in the broad daylight of wider and more varied knowledge, to scan them under the rough but just criticism of the votaries of other shrines, their delusions would have vanished. But yet worse remains: there is the far greater danger, that where a number of individuals are congregated with faculties intensely bent on one common object, the legitimate spirit of emulation may degenerate into envy and hatred, or self-esteem be exalted till it blots out all memory of our duty to man and God. It is known to most of us, how, towards the close of the last century, the naturalists of the Royal Society trampled on its physicists and mathematicians, and not long since (*fas sit audita loqui*) the ascendency of the latter became in its turn a cause of irritation and jealousy. The death of Lavoisier still throws a painful shadow over the memory of Fourcroy. Halley rejected Revelation, because he would not be satisfied with any evidence which had not the rigour of geometric proof; and a greater than Halley has argued from the theory of probabilities *against* Christianity and *for* mesmerism.

But even waving the consideration of its injurious influences on the mind, the advantage to be derived from the isolation of scientific pursuits is more apparent than real. In fact it is impracticable to any great extent; for there is no branch of science which does not inosculate with many others. Take, for example, the geologists, who were the first to act on this system of separation. None are more ready than they to press into their service the geometry of Hopkins, or the earthquake-dynamics of Mallet; and the deepest

fountain of their power springs in zoology. The two greatest triumphs of human intellect, the Principia and Mecanique Celeste, owe their very existence to the data of the practical astronomer, and even take a little from the literature of Greece and China. The most exclusive antiquarian is glad to obtain light from chemical investigation, or borrow an eclipse from the astronomer; and must honour that science which formed those powers of keen analysis and severe induction which have torn the veil from the mysteries of Ogham. Accordingly philosophers are retracing their steps, and feel the necessity of recombining their societies into large and powerful unions; they have performed this in our own isles, among our transatlantic kinsmen, in Germany, France, and Italy; with results so successful as to give the highest guarantee for the wisdom of such a course. In these new bodies the essential condition is a separation of departments, bound together into harmony of action and unity of purpose by a common organization, and an equal participation of authority and power. In this, which exactly defines the system of the British Association, you find a correct description of our own constitution. Honoured, therefore, be the memory of our founders! who, anticipating this important result by more than fifty years, selected from the crowd of possible combinations that which not only secures the good and avoids the evil that I have indicated, but was, perhaps, the only one which, under the existing circumstances, contained in itself a principle of permanent vitality. Doubtless to it we owe not only our present prosperity but our actual existence. If you look at the early volumes of our Transactions, and examine the list of our original members, you will see how far the department of Literature predominated; and will be convinced that a society which had been organized on a base either purely scientific or archæological must have perished at once, and left scarcely a tradition of its existence. It is true that afterwards the chemistry of Kirwan, and the geometry and astronomy of Brinkley, gave powerful aid; but I remember well, and I see valued friends here who still remain to bear witness with me to the fact, that there were times when we were unable to muster even a quorum for ballot; and when the sole principle that saved us from dissolution was the habit of union, the feeling of personal

attachment, and the interchange of kindness and courtesy, to which this Institution had trained its Members. But though those times have passed, and though we now stand at an elevation of which your founders never dreamed, yet let us not forget, in the season of triumph, the principle to which we owe it. That principle is equality of consideration and power in each of our departments. No doubt many will be ready to dispute its truth, and assert the supremacy of their favourite pursuits; but let such beware of "the Idols of the Cave." Each individual thinks that the noblest for which he feels himself most highly gifted; but for that very reason he is the worst possible judge as to the relative value of any other. We have already seen that this system affords the best means of general intellectual development; let us also consider how it bears on the elements of our power.

Our power depends on the place we hold in public estimation at home and abroad; these two react on each other. Abroad we can be known only by our publications; while they appear regularly, and maintain their present high standard of value, so long we shall command the suffrages of the world; the honour which we win is reflected on our country, and therefore we are upheld and cherished by our countrymen. But it would be unsafe to rest on this alone, or strain the chivalry of sentiment too far. We must also make our countrymen take a direct and personal interest in our proceedings; we must mark out for ourselves a range of exertion, which shall as far as possible conciliate the sympathy and co-operation of all. Now it is unquestionable that, with reference to the approbation of the world at large, the mathematical part of our Transactions holds the highest place. This is just; but let us never forget that, were our pursuits restricted to that one science, we should soon be unable to publish a single volume. Such investigations are not of general interest; the number of those who can read, much less appreciate them, is inversely as their value; and though there is probably in this room a larger per-centage of persons thus competent than could be found in any similar assembly in Europe, you would wonder, if I reckoned their names, to find so few. Yet on those few the rest of you rely; you accept with confidence their estimate of the value of such researches, and in that faith *you* sup-

ply the means of presenting them to the world. This is as it should be; but it is only just that your confidence be returned. You have a perfect right to demand from the geometrician a similar concession; you are entitled to expect that, for instance, if he be ignorant of the language or history of Ireland, he shall trust to the antiquarian on subjects where the acquirements of the latter are essential. The more firmly we are convinced of this (which is in truth the only true base of prosperity as a body) the safer we shall be. We can never forget it without lessening our usefulness and weakening our power: it is enforced by prudence as well as justice; for we must look to the departments of Literature and Antiquities as the main sources of our national influence. Those transcendental achievements to which I have referred act through a remote and exterior zone; the others bear more powerfully on one which, though of less extent, surrounds us in immediate contact, from which we draw the elements of our body, in whose movements our existence is involved. Whatever tends to interest our countrymen in our pursuits, strengthens our hands; and it is needless to show that in this respect the objects which are most popular must be most powerful. You have hitherto carried out this principle most effectually, and I now insist on it the more, as an application of it to the special action of one of your committees may not be unworthy of your consideration. Two of them have lately devoted themselves to work which will give us an additional claim on the gratitude of the Public. The Committee of Science is superintending a survey of the tides and meteorology of our island; both subjects of peculiar interest, the first from the remarkable facts which Mr. Airy's discussion of them has made known, and from variations of the mean sea-level round our shores, as yet inexplicable by theory, and therefore requiring most careful examination; the other from its striking contrast with continental climates, and its display of oceanic influence, whose working must be important on organic life, perhaps even on national character. The Committee of Antiquities, besides the service which it conferred on us and the world in establishing our Museum, that glorious fragment of the vanished past, is about to complete its tribute to the ancient renown of Ireland by describing and illustrating its treasures. This is no easy task; yet when the Council

lay before you the arrangements for its execution which they recommend, you will, I think, be satisfied that it will be completed in a manner worthy of its subject and of you.

I must, however, regret that we cannot point to any similar exertion of the Committee of Polite Literature. It is true that times are much changed since its institution; the periodical press now opens a more appropriate course for much that would have belonged to its department; and, notwithstanding the practice of some Continental societies, there are (I think) few among us who would venture before such a meeting as this to recite their own verses. But a wide field remains. Ethnology in all its provinces; all that relates to history, or philosophy of language; the character, the rise and decline of the literature of nations:—in all these can nothing be found to interest our friends and increase our honour? One is so obvious that I cannot refrain from suggesting it for your consideration. We have added to our early store of Irish manuscripts the collection of Smith, and now that of Betham; both, I believe, of extreme rarity and value. It is certainly much that these precious relics have been saved from dispersion, perhaps destruction; but I cannot bring myself to feel that this is enough to compensate the generous bounty which has enabled us to acquire them, or to answer the claim which the literary world has a right to urge for a knowledge of their contents. To watch over their conservation, to arrange them in a manner worthy of their value, to give a catalogue of them,—not a dead, arid list of names but one which shall exhibit the mind and manner of each author as well as his matter, such as shall be a clear and satisfactory guide to ulterior research,—this, as it would certainly repay the labour bestowed on it, and be in the truest harmony with our duty to our country, so it never can be executed under happier auspices, and if deferred for a few years may be totally impracticable.

I have thus endeavoured to lay before you the rules by which, in my opinion, our conduct should be guided; rules, at least, which have ever guided *me* in relation to the Academy, and ever shall guide. If we abide by them I see no reason to doubt the future. There still remain with us, in undiminished splendour, most of the commanding minds to whose power we owe our present pre-emi-

nence; others are rising, worthy to co-operate with them, and in due time to succeed them; nor need we fear that genius and energy will ever fail among our people. Still less have I any dread of that greater calamity, that in the pursuit of knowledge we may make shipwreck of Faith; that Science, while like sunlight it reveals the wonders of earth, may obscure those of heaven. That temptation has over us but little hold; our temperament is too poetic, too reverential, too religious! If there be any cloud that throws a shadow over our prospect, it is the dread of DISUNION, that bane of Ireland, whose poison has tainted every page of her history from the beginning to the present time; whose baneful influence has made of no avail the valour of her heroes, the genius of her bards, the wisdom of her sages, and the piety of her saints! I say this, not from any belief that it has as yet found entrance among you; on the contrary, all my experience has shown that in this respect you are honourably distinguished above most other societies; and I hold the lesson which your example has thus given as one of the greatest blessings which you have conferred on your country. Yet be ever on your guard, and therefore let me conclude by giving you a charm against the serpent, which I received from one who seldom spoke in vain.*

"Look to the true ends of knowledge! Seek it not for amusement, for contention, or that you may look down on others! Seek it not for profit, or fame, or power, or mean things of the sort, but for its own dignity and the improvement of life! Make it perfect, and wield it in gentleness and love! For by desire of power angels fell; by desire of knowledge, men. But of love there can be no excess, and by it neither angel nor man was ever endangered."

It remains now to enter on the duties to which you have called me. May I justify your choice! I rely on the zealous co-operation of you all; I rely on the talents and prudence of the Council whom you have appointed to assist me; but I rely above all on the highest aid, Him, without whom all else is vain. May He bless our labours to our own improvement, happiness, and wisdom; to the advantage of our fellow-men, and a fuller manifestation, to ourselves and them, of His goodness, His glory, and His power!

* Preface to the Novum Organum.

The President, under his hand and seal, nominated the following Vice-Presidents for the current year:

Rev. C. W. Wall, D. D., Vice-Provost, T. C. D.
John Anster, LL. D.
James Apjohn, M. D.
Rev. Humphrey Lloyd, D. D.

Rev. Charles Graves read a communication from Edward J. Cooper, Esq., on comets.

Rev. Samuel Butcher read a paper by the Rev. Francis Crawford, on the connexion between certain terminations of words in the Hebrew and in different Indo-European languages.

The author has long been of opinion that a close connexion exists between Hebrew and the Indo-European family of languages; and that this connexion is not confined to the *radical* elements of these languages, but extends also to the *formative* elements. The object of the present paper is to exhibit some instances of the affinity which he has found to exist between the latter.

He first notices the class of stem-words formed by adding to the original root, or some other stem, the liquid *l* preceded by a vowel.

Thus, in *Latin*, we have

ag-il-is,	from	*ag-o*.
doc-il-is,	,,	*doc-eo*.
fac-il-is,	,,	*fac-io*.
fid-el-is,	,,	*fid-es*.
ann-al-is,	,,	*ann-us*.

In Latin the vowel which precedes *l* is *a*, *e*, or *i*. In *Greek* the same mode of formation is found, but the vowel is more generally *a*; thus: